

**DISCUSSION OF PROFESSORS' CONTENT KNOWLEDGE ON  
PERFORMANCE ASSESSMENT  
PERFORMANCE TASK AND RUBRIC DEVELOPMENT**

(see Program A.5 and Instruments in C.2 - Scarborough)

**(pages 6-13; Educational Research follows on page 14)**

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The learning and professional growth on the Performance Assessment program or knowledge component was measured by the professors' performance on the task of designing and developing three complex performance tasks and three corresponding rubrics for scoring task achievement. Using the Rubrics below as guiding criteria, they each designed three complex performance tasks and corresponding rubrics. These assessments were added to their course as new assessment strategies and assessment procedures.

It is important to note that one performance task/rubric was designed to correspond with the midterm and another to correspond with the final exam using the logic that objective tests usually reflect what students know or know about rather than what they can do. Therefore, we used an unusual scenario where the professors "linked" the objective midterm exam to a midterm performance task/rubric and an objective final exam to a final performance task/rubric. They also developed a third performance task/rubric and choose how and when to use it. They were asked to "match" where they thought the test items and performances "overlapped" and measured the same or similar content. It was assumed from studying the literature that performance assessment measures different aspects of learning, sometimes deeper levels of learning through use of knowledge in more active or engaging ways, problems, projects, etc. But performance assessment can also measure some of the same aspects of learning as objective tests. Also some of the professors designed their tests to incorporate some level of performance in subjective or problem-based items. In examining the tests and analyzing them, the objective items were separated from the more performance-based items. Professors were provided a presentation about Performance Assessment. Performance Tasks and Rubrics were discussed, and they received a portfolio of sample tasks and rubrics. They were given books on the topic as part of their new library on teaching and learning.

Their performance tasks and rubrics reflect the ABET or NAIT standards with corresponding rubrics. Perhaps one professor had used simple and less formalized rubrics before, but none of the professors had developed or used formal, written, scenario-based performance tasks with corresponding rubrics before this initiative. Thus, there were no previous instruments to view from the baseline semester, Fall 2005, and compare to these. Therefore, we judged them based upon the Rubrics below.

**Performance Task:** Design and develop three complex performance tasks with corresponding rubrics. The tasks must be based upon the ABET outcomes or NAIT standards and corresponding student learning outcomes for the course; they must also reflect real world, authentic performances or tasks in the appropriate community of practice, e.g. industry. The performance tasks and rubrics must be used to measure student learning

in the experimental research course, Fall 2006. See the **Rubrics** below for the achievement criteria to use in accomplishing the task.

**Professors' Performance:** The professors accomplished the performance task well. The process involved drafting initial and authentic real world scenarios with embedded task clusters and a corresponding rubric instrument for each task (3). The program leader provided feedback one-on-one as the performance tasks were developed. The professors shared their drafts with each other and benefited from the group critique process. The group process worked especially well. The tasks and rubrics were finalized; the program leader approved them; and then, each professor used the tasks and corresponding rubrics successfully with students during the 2006 experimental research semester. After the semester was completed, the professors copied all rubrics returned to each student in their classes for all three performance tasks. The program leader reviewed the scored/with comments rubrics that each student received back from the professors. Thus, the use of the rubrics was also reviewed. Finally, the professors completed a feedback/evaluation form about the use of performance assessment for the first time. As with test analysis and development, the feedback from the professors on the value of learning to design, develop, and use performance tasks/rubrics was extremely positive.

The following rubrics were used to guide the professors in the development of the three performance tasks and corresponding rubrics for each task.

Also, the feedback and evaluation questionnaire and professor responses are provided below, following the rubrics. The faculty members truly felt that expanding their assessments to include performance tasks with rubrics was extremely positive. They all indicated that they will continue to use performance assessment, tasks and rubrics, and also expand the use of performance assessment to other courses.

## Rubric for Assessing the Quality of a Performance Task

### Key Components - Properly Designed Performance Tasks must

- I. Be based on content standards established by ABET or NAIT**
- II. Describe a “real-life” scenario; are real world, authentic tasks; require active performances**
- III. Involve students in complex reasoning – critical thinking at upper levels of Bloom’s Cognitive Dimension**
- IV. Require students to collect and process information, using it for an authentic purpose**
- V. Incorporate “habits of mind”**
- VI. Require student collaboration and cooperation; incorporates “individual” and “group” learning and performance accountability**
- VII. Result in a tangible product and/or communication activity**

### For each component, there are descriptors reflecting levels of achievement possible:

- I. The Performance Task is based on the ABET or NAIT standards**
  - a. The Performance Task is directly related to the ABET or NAIT standards.
  - b. Learning standards are apparent, but the relation to the task and/or national standards is sketchy or not apparent.
  - c. The Performance Task does not appear to be based on the standards/outcomes, course or national.
- II. The Performance Task describes a “real-life” scenario that is authentic and requires active performance.**
  - a. The scenario described in the task accurately mirrors an activity in the community of practice outside the classroom.
  - b. The scenario described in the task simulates an activity in the community of practice outside the classroom.
  - c. The scenario described in the task contains some aspects of activity outside the classroom but is largely contrived.
  - d. The scenario described in the task is an academic exercise that usually takes place only in the context of an academic setting.
- III. The Performance Task involves students in complex reasoning-critical thinking processes at upper levels of Bloom’s Cognitive Dimension.**
  - a. The task requires students to utilize complex reasoning – critical thinking skills, such as induction/deduction, diagnosis, abstracting, experimental inquiry, problem solving; evaluation, creation, synthesis, etc.
  - b. The task requires students to utilize complex reasoning components, such as comparing, classifying, decision making, or investigation.
  - c. The task requires students only to recall facts.
- IV. The Performance Task requires students to collect and process information, using it for an authentic purpose.**
  - a. The task incorporates a variety of information gathering techniques and information resources. Students are required to interpret and synthesize information and accurately assess the value of information gathered. They are required to collect the right information for an authentic purpose, e.g. solve a problem, apply or use in a complex project, etc.
  - b. The task requires students to gather and synthesize information, but the value of the information gathered is not assessed. Information may not be used for a purpose.
  - c. The task requires the students to gather information, but not to interpret it.
  - d. The task requires no gathering or processing of information.
- V. The Performance Task incorporates “Habits of Mind.”**
  - a. The task requires students to make effective plans, use necessary resources, evaluate effectiveness of their own actions, seek accuracy, and engage in activities when answers or solutions are not immediately apparent.
  - b. The task only requires students to effectively plan or use resources.
  - c. The task does not require students to engage in self-regulation, critical, or creative thinking.
- VI. The Performance Task requires student collaboration and cooperation; incorporates “individual” and “group” learning and performance accountability.**
  - a. The task requires students to use interpersonal skills, work toward the achievement of team goals, and perform a variety of roles within the team. There is a formal team structure and process.
  - b. The task requires students to work together in teams but there are no measures described that ensure collaboration or cooperation among team members.
  - c. The task is completed largely by students on an individual basis rather than in student teams.
- VII. The Performance Task results in a tangible product and/or communication activity.**
  - a. The task result is a tangible product or communication activity comparable to that commonly produced in business or industry community of practice.
  - b. The task results in a product that is similar to those completed in business or industry community of practice, but lacks several components that make the product realistic.
  - c. The task does not result in a product or communication activity relevant to a business or industry community of practice.

(Scarborough, 2006 [Based upon White & Scarborough, 2004])

## **Rubric for Assessing the Quality of a Rubric**

### **Properly Designed Rubrics Must**

- I. Contain a set of key components/standards to be assessed that reflect the student learning outcomes for the course, which are directly linked to the national outcomes.**
- II. Include descriptors for each component/standard that are measurable.**
- III. Have descriptors-criteria that are indicative of observable student performances or behaviors.**
- IV. Incorporate a clear and well-defined scoring system**
- V. (Optional) Include appropriate weights for each component and descriptor**

**For each component, there are descriptors reflecting levels of achievement possible:**

#### **I. The rubric contains a set of key components (standards) to be assessed.**

- a. A complete list of key components-standards is provided for the performance task, including the embedded subtasks, if a cluster. The task(s) are directly connected to student learning outcomes for course and the national outcomes.
- b. Key components/standards listed are not exhaustive for the performance task and/or subtasks embedded are not clear enough for student response or action; components or standards are not clearly connected to student learning outcomes for course.
- c. Not all key components/standards describe student outcomes; some are not directly linked to national outcomes.
- d. No key components are listed.

#### **II. The rubric includes a set of descriptors-criteria for each key component or standard.**

- a. Descriptors-criteria for each component or standard are arranged in a clear hierarchy from non-achievement to full-achievement.
- b. Descriptors-criteria are present for each component/standard, but obvious levels in some are missing.
- c. Each component does not have an associated set of descriptors-criteria.

#### **III. The rubric descriptors/criteria are clear and contain observable or measurable student performances or behaviors.**

- a. All descriptors-criteria clearly delineate levels of observable student performances or behaviors.
- b. Most descriptors-criteria clearly delineate levels of observable student performances or behaviors.
- c. Only a few descriptors-criteria clearly define levels of observable student performances or behaviors.
- d. Descriptors-criteria do not describe observable student performances or behaviors.

#### **IV. Incorporate a clear and well-defined scoring system**

- a. There is a well defined and clear system for scoring each component-standard and its descriptors-criteria. Points or percentages are assigned appropriate to instructional and performance values.
- b. The scoring system lacks definition, clarity, and although there is a scoring system, some aspects are ambiguous, subjective or unclear.
- c. There is no scoring system.

#### **V. Optional: Appropriate weights are assigned to components and descriptors.**

- a. Component-standards and descriptors-criteria are each properly weighted according to instructional emphasis and performance values.
- b. Weights are assigned, but point values do not reflect proper instructional emphasis or performance values in all cases.
- c. Weights are assigned to some performance standards and descriptors, but not others.

(Scarborough, 2006 [Based upon White & Scarborough, 2004])

**CEET Initiative on Teaching and Learning - Performance Assessment Feedback, Jan,  
2007**

(7/7 respondents)

**1. Was the time spent developing performance tasks worth your time – worthwhile?**

(7) Yes

Not really

Why?

- *“A lot of work, but they really engage students”*
- *“Allowed me to think about what students should be able to perform after completing the course.”*
- *“Invaluable.” “Although I always give ‘projects’, I was naïve to many of the aspects of a true performance task.”*
- *“Performance tasks made students (1) solve open ended problems; (2) work in groups; (3) identify problems and try to have multiple solutions and then justify the solution.”*

**2. Was the time spent developing rubrics for scoring the performance tasks worth your time – worthwhile?**

(7) Yes

Not really

Why?

- *“Students knew what was expected of them; grading was a bit easier; fewer students challenged their grades.”*
- *“Allowed me to set expectations from the PAs.”*
- *“The students really responded well to them! They liked knowing the expectations for performance tasks.”*
- *“I didn’t have this experience before.”*
- *“Rubrics helped students understand what is expected of them and how they will be graded.”*

**3. Would you recommend the performance task program content for other faculty members?**

(7) Yes

Not really

Why?

- *“Valuable”*  
*“It will be a good exercise for others.”*
- *“I think any new faculty should be exposed to this experience.”*
- *“I feel students learned a lot because of the performance tasks.”*

**4. Would you recommend the rubric program content for other faculty members?**

(7) Yes

Not really

Why?

- *“It will be a good exercise for others.”*
- *“This, I believe, is a necessity.”*

**5. Were the performance tasks a beneficial addition to the student assessment plan for your course?**

(7) Yes

Not really

Why?

- *“It was another dimension of assessment. Some students who did not do well on tests...really shined in performance.”*  
*“Provides additional form of assessment method.”*
- *“It added a new dimension of student assessment; also these performances tasks involved various learning styles.”*

**6. Were the rubrics beneficial for scoring the performance tasks?**

(7) Yes

Not really

Why?

- *“Students knew what was expected of them; grading was a bit easier; fewer students challenged their grades.”*
- *“Makes the scoring process easier.”*
- *“It made it easier for me – and the students also responded well. IT is necessary to have a procedure mapped out for them to understand the expectations and levels.”*
- *“They make grading progress easier.”*
- *“Otherwise, it would be very subjective or arbitrary.”*

**7. Were the performance tasks an effective tool for enhancing student learning?**

(7) Yes

Not really

Why?

- *“Bigger, more authentic tasks.”*
- *“Students can demonstrate what they can perform after completing the course.”*
- *“(1)It allowed for many more teaching styles to be incorporated in the course; (2) more learning styles were also included; (3) a good tool for group work as well.”*
- *“They really understand expectations.”*
- *“Students’ learning involves various learning and teaching style, and models and performance tasks provided these opportunities.”*

**8. Were the performance tasks an effective tool for measuring student learning?**

(7) Yes Not really

Why?

- *“It was another dimension of assessment. Some students who did not do well on tests...really shined in performance.”*
- *“Students can demonstrate what they can perform after completing the course.”*
- *“(1) It demonstrated their abilities to communicate effectively; (2) It demonstrated their abilities to synthesize, apply, and evaluate subject matter content.”*
- *“Students’ learning may not be completely assessed by only exams and homework.”*

**9. Were the rubrics an effective tool for scoring the outcomes of student performances on the tasks?**

(7) Yes Not really

Why?

- *“It was another dimension of assessment. Some students who did not do well on tests...really shined in performance.”*
- *“See previous comments.”*
- *“Rubrics provide the details of expected outcomes.”*

**10. Were the rubrics effective in helping students to understand more about what you expected them to do by revealing the standards and scoring mechanism with them up front?**

(7) Yes Not really

Why?

- *“It was another dimension of assessment. Some students who did not do well on tests...really shined in performance.”*
- *“Students know the expectations.”*
- *“See previous comments.”*
- *“They know what is expected of them.”*

**11. Do you feel that more formalized performance tasks and rubrics improve the opportunity for students to provide evidence of learning?**

(6) Yes (1) Not really

Why?

- *“It was another dimension of assessment. Some students who did not do well on tests...really shined in performance.”*
- *“Not everyone is good in taking tests. Also exams and homework do not provide the opportunity through performance tasks.”*
- *“Two is enough.”*

**12. Would you recommend that other faculty members get the opportunity to learn to develop and use performance tasks and rubrics as student assessment tools?**

(7) Yes

Not really

Why?

- *“I believe this was one of the most beneficial aspects of the program with regard to student learning and assessment. It ties in with active learning and Bloom’s Taxonomy.”*
- *“It was a big help for me.”*

**13. Was the performance/rubric development process used with this group – “*developing while learning from presentation, examples, and one-on-one feedback*” - effective?**

(7) Yes

Not really

Why?

- *“One-on-one feedback especially helpful.”*

**14. Will you continue to use performance tasks and rubrics in this and/or other classes?**

(7) Yes

Not really

Why?

- *“To improve student learning.”*

**15. Strengths of the performance task/rubric program component.**

- *“Already stated in above [responses].”*
- *“Measures what students can really perform with their learned tools.”*
- *“Quantified student performance; gave students guidance and goals.”*
- *“I liked the development of the Performance Tasks, especially with the rubric. Discussions were enlightening, as well as our group discussions and evaluations.”*
- *“Very good way in presenting material; Different styles of rubrics presented; also working in our same classes helped to learn how to do rubrics and performances.”*
- *“Provide other teaching styles, learning styles, and teaching models.”*
- *“Allow for active learning. Results show improvement when Performance Tasks were done in groups.”*

**16. Areas to improve in the performance task/rubric program component.**

- *“Revisit and revise.”*
- *“None.”*
- *“Streamline the time scale.”*
- *“Good as is.”*

**17. General comments:**

- *“This part was exceptional—I will always use this info in my classes in the future.”*
- *“Very good program.”*

*“Results indicate conclusively that learning level was enhanced [by students in experimental*